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Atty Docket No.: 200310012-1

App. Ser. No.: 10/769,137

IN THE CLAIMS:

Please find below a listing of all of the pending claims. The statuses of the claims are set forth in parentheses.

1. (Currently Amended) A method for extracting demographic information, comprising:

initiating a dialog between a contact and a call handling system;

selecting a set of demographic characteristics;

assigning a set of acoustic confidence scores to the demographic characteristics;

assigning a set of substantive confidence scores to the demographic characteristics,

wherein assigning substantive confidence scores includes:

presenting the contact with a set of multiple choice questions associated with the demographic characteristics;

collecting a set of responses to the multiple choice questions from the contact, wherein the set of responses includes a choice that the contact selected from the multiple choices;

comparing the contact's responses to a predefined body of multiple choice question responses associated with the set of demographic characteristics; and

assigning a set of multiple choice confidence scores to the demographic characteristics based on the comparison;

combining the acoustic, multiple choice, and substantive confidence scores for each of the demographic characteristics; and

tailoring information presented to the contact using the set of combined confidence scores.

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2. (Original) The method of claim 1, wherein assigning substantive confidence scores includes:

- presenting the contact with a first substantive dialog;
- collecting a set of responses to the first substantive dialog from the contact;
- comparing the contact's responses to a predefined body of responses associated with the set of demographic characteristics; and
- assigning a first set of substantive confidence scores to the demographic characteristics.

3. (Original) The method of claim 2, wherein presenting includes:

- continuing to present the contact with the substantive dialog until one of the substantive dialog confidence score reaches a predetermined value.

4. (Original) The method of claim 2, wherein presenting includes:

- continuing to present the contact with the substantive dialog until a predetermined time period has expired.

5. (Original) The method of claim 2, wherein presenting includes:

- presenting the substantive dialog to the contact when the contact is placed on hold.

6. (Original) The method of claim 2, wherein assigning substantive confidence scores includes:

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presenting the contact with a second substantive dialog, in response to a request from the call handling system;

collecting a set of responses to the second substantive dialog from the contact;

comparing the contact's responses to the predefined body of responses

associated with the set of demographic characteristics; and

assigning a second set of substantive confidence scores to the demographic characteristics.

7. (Original) The method of claim 1, wherein assigning substantive confidence scores includes:

presenting the contact with a probing dialog;

collecting a set of responses to the probing dialog from the contact;

comparing the contact's responses to a predefined body of probing dialog responses associated with the set of demographic characteristics; and

assigning a set of probing dialog confidence scores to the demographic characteristics.

8. (Original) The method of claim 7, wherein presenting includes:

asking the contact a set of questions associated with the demographic characteristics.

9-10. (Canceled).

11. (Original) The method of claim 1, wherein assigning acoustic confidence scores includes:

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extracting an acoustic feature from the contact's speech signal; and
comparing the feature to a predefined body of speech signal features associated with
the set of demographic characteristics.

12. (Original) The method of claim 1, wherein combining includes:

weighting the confidence scores using ground truth data.

13. (Original) The method of claim 1, wherein weighting includes:

adjusting a first confidence scores weight for a given demographic characteristic if the
first confidence score differs from a second confidence score for that given demographic
characteristic by a predetermined amount.

14. (Original) The method of claim 1, wherein combining includes:

multiplying together the confidence scores for each demographic characteristic.

15. (Original) The method of claim 1, wherein combining includes:

combining the confidence scores for each demographic characteristic according to the
following formula:

$$S(C_i) = \sum_{j=1}^N r_j p_{ij} \text{ (where } N \text{ is a total number of classifiers, } C_i \text{ is the } i\text{'th}$$

demographic characteristic, and P_{ij} is a confidence score for C_i generated by
Classifier j , and r_j is trained weights).

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16. (Original) The method of claim 1, wherein combining includes:

combining the confidence scores from each classifier for each demographic characteristic according to the following formula:

$$S(C_i) = \prod_{j=1}^N p_{ij}^{r_j} \text{ (where N is a total number of classifiers, } C_i \text{ is the } i\text{'th}$$

demographic characteristic, and P_{ij} is a confidence score for C_i generated by Classifier j , and r_j is trained weights).

17. (Original) The method of claim 1, wherein combining includes:

using a neural net to combine the confidence scores for each demographic characteristic.

18. (Original) The method of claim 17, wherein the neural net is a Multiple Layer Perception (MLP) network.

19. (Original) The method of claim 1, wherein tailoring includes:

identifying a sub-set of the demographic characteristics having combined confidence scores exceeding a predetermined set of thresholds; and

presenting the contact with information specifically directed to contacts having the sub-set of demographic characteristics.

20. (Original) The method of claim 19, wherein the predetermined threshold is equal to a highest combined confidence score.

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21. (Original) The method of claim 1, wherein the demographic characteristics include gender, age, accent, and stress level.
22. (Currently Amended) A method for extracting demographic information, comprising:
- initiating a dialog between a contact and a call handling system;
 - selecting a set of demographic characteristics;
 - assigning a set of acoustic confidence scores to the demographic characteristics;
 - assigning a set of substantive confidence scores to the demographic characteristics;
 - combining the acoustic and substantive confidence scores for each of the demographic characteristics;
 - tailoring information presented to the contact using the set of combined confidence scores;
 - presenting the contact with a probing dialog;
 - collecting a set of responses to the probing dialog from the contact;
 - comparing the contact's responses to a predefined body of probing dialog responses associated with the set of demographic characteristics;
 - assigning a set of probing dialog confidence scores to the demographic characteristics;
 - presenting the contact with a set of multiple choice questions;
 - collecting a set of responses to the multiple choice questions from the contact,
- wherein the set of responses to the multiple choice questions includes a choice that the contact selected from the multiple choices;

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comparing the contact's responses to a predefined body of multiple choice question responses associated with the set of demographic characteristics; and
assigning a set of multiple choice confidence scores to the demographic characteristics.

23. (Currently Amended) A computer-readable usable medium embodying computer program code for commanding a computer to extract demographic information, comprising:

initiating a dialog between a contact and a call handling system;
selecting a set of demographic characteristics;
assigning a set of acoustic confidence scores to the demographic characteristics;
assigning a set of substantive confidence scores to the demographic characteristics, wherein
assigning the set of substantive confidence scores includes:

presenting the contact with a set of multiple choice questions associated with
the demographic characteristics;

collecting a set of responses to the multiple choice questions from the contact,
wherein the set of responses includes a choice that the contact selected from the
multiple choices;

comparing the contact's responses to a predefined body of multiple choice
question responses associated with the set of demographic characteristics; and

assigning a set of multiple choice confidence scores to the demographic
characteristics based on the comparison;

combining the acoustic, multiple choice, and substantive confidence scores for each
of the demographic characteristics; and

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tailoring information presented to the contact using the set of combined confidence scores.

24. (Currently Amended) A system for extracting demographic information, comprising a:
- means for initiating a dialog between a contact and a call handling system; means for selecting a set of demographic characteristics;
 - means for assigning a set of acoustic confidence scores to the demographic characteristics;
 - means for assigning a set of substantive confidence scores to the demographic characteristics, wherein assigning a set of substantive confidence scores includes:
 - presenting the contact with a set of multiple choice questions associated with the demographic characteristics;
 - collecting a set of responses to the multiple choice questions from the contact,
 - wherein the set of responses includes a choice that the contact selected from the multiple choices;
 - comparing the contact's responses to a predefined body of multiple choice question responses associated with the set of demographic characteristics; and
 - assigning a set of multiple choice confidence scores to the demographic characteristics based on the comparison;
 - means for combining the acoustic, multiple choice, and substantive confidence scores for each of the demographic characteristics; and
 - means for tailoring information presented to the contact using the set of combined confidence scores.

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25. (Currently Amended) A system for extracting demographic information, comprising:

- an Interactive Voice Response module for initiating a dialog between a contact and a call handling system, and selecting a set of demographic characteristics;
- an acoustic classifier for assigning a set of acoustic confidence scores to the demographic characteristics;
- a substantive classifier for assigning a set of substantive confidence scores to the demographic characteristics; and
- a data combiner for combining the acoustic and substantive confidence scores for each of the demographic characteristics;

a multiple choice classifier for assigning a set of multiple choice confidence scores to the demographic characteristics, wherein assigning the set of multiple choice confidence scores includes:

- presenting the contact with a set of multiple choice questions associated with the demographic characteristics;
- collecting a set of responses to the multiple choice questions from the contact, wherein the set of responses includes a choice that the contact selected from the multiple choices;
- comparing the contact's responses to a predefined body of multiple choice question responses associated with the set of demographic characteristics; and

wherein the Interactive Voice Response module further tailors information presented to the contact using the set of combined confidence scores.

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26. (Currently Amended) The system of claim 25, wherein the substantive classifier includes:

a probing dialog classifier for assigning a set of probing dialog confidence scores to the demographic characteristics; and

~~a multiple-choice classifier for assigning a set of multiple-choice confidence scores to the demographic characteristics.~~